VAISALA Certificate of Calibration

Certificate #:	022014-B-G0820116
Calibration Date:	February 20, 2014
Type:	Vaisala Humidity & Temperature Transmitter
Model #:	HMT337
Serial #:	G0820116
SR #:	200347

Customer: College Of Earth, Ocean And Atmospheric Sciences
Corvallis, OR

Condition: The instrument was operational upon receipt. The 'As Found' RH readings were out of tolerance. There was no RH sensor damage or contamination found.

Action Taken: The chemical purge function was run. After the purge the RH reading rose. The unit was adjusted and calibrated.

Analog Outputs:

CH1:	0...5 V	0...100 %RH
CH2:	0...5 V	-40...180 °C, T

Due Date: * February 20, 2015

RH Calibrated By:

Jhonson François
Calibration Technician

Approved By:

The measurement results on the certificate are traceable to national or international standards. The results of this calibration relate only to the items being calibrated. This certificate may not be reproduced, except in full, without the prior written approval of the issuing laboratory. Vaisala is ISO 9001:2008 certified. Vaisala's calibration system complies with the requirements of ANSI/NCSL Z540-1-1994.

The calibration laboratory is controlled at 22 °C ± 3 °C and 40 %RH ± 20 %RH.

Special Limitations: None.

*Any due date given is based on a customer provided calibration interval. A number of factors may cause drift prior to the due date. Monitor all devices and calibrate when measurement error is suspected.

Vaisala Inc. | Boston Office
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Relative Humidity Calibration

Procedure #: 11603108
Instrument Range: 0 to 100 %RH
Lab Environment: Relative Humidity 25.1 %RH, Temperature 22.3 °C

As Found Data

Out Of Tolerance As Received: YES

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
11.50	11.90	0.40	1.00	0.42
33.10	32.80	-0.30	1.00	0.60
75.08	73.96	-1.12	1.00	0.79
95.02	93.10	-1.92	1.70	0.72
Temperature, °C				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
22.17	22.15	-0.02	0.21	0.13

After Chemical Purge

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
75.08	76.00	0.92	1.00	0.79

As Left Data

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
11.50	11.76	0.26	1.00	0.42
33.10	33.58	0.48	1.00	0.60
75.10	75.56	0.46	1.00	0.79
95.01	95.90	0.89	1.70	0.72
Temperature, °C				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
22.19	22.17	-0.02	0.21	0.13

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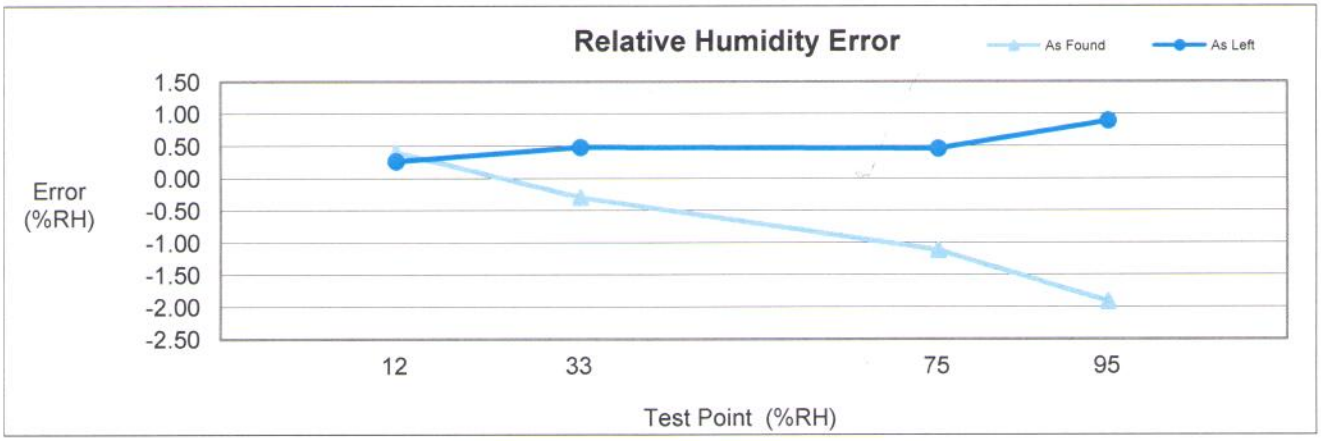
Relative Humidity Calibration



Reference Standards Calibration Information				
Model	**Serial Number**	**Asset Number**	**Calibration Date**	**Due Date**
Thunder Scientific 2500	0504485	5011-0020	Jan. 29, 2014	Jul. 29, 2014
Fluke 8846A	2156021	3011-0360	Aug. 28, 2013	Aug. 28, 2014

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Description

The calibration was performed in the Standard Laboratory of Vaisala, Inc. The instrument was first allowed to equilibrate to the laboratory environmental conditions for a period of at least 8 hours.

Relative Humidity Calibration: The sensor of the instrument was placed in the chamber of a Thunder Scientific 2500. The instrument was allowed to stabilize for at least 30 minutes at each testpoint.

Chemical Purge: A chemical purge was performed on the RH sensor before the instrument was adjusted or "As Left" data was taken. This was done to drive off any interfering chemicals that may have been absorbed by the sensor. Contamination most often causes a decrease in sensor gain. An interfering chemical may have been present on the sensor if the "After Purge" readings were higher than the "As Found" readings.

References

The Thunder Scientific 1200/2500 Two-Pressure Humidity Generator saturates a continuous stream of air with water vapor at a controlled pressure and temperature. The saturated high-pressure air then passes through an expansion valve to generate a specific humidity at the chamber pressure and temperature. The generator is traceable to NIST via Thunder Scientific or an MBW 373LHX chilled mirror hygrometer.

In or Out of Tolerance Decision Rule

Out of tolerance conditions are determined by the product specification only. The calibration uncertainty is not tied in with the instrument's accuracy.

Uncertainty

The reported expanded uncertainty of the measurement is stated as the standard uncertainty of the measurement multiplied by the coverage factor of k=2, which corresponds to a coverage probability of approximately 95%. The standard uncertainty of the measurement has been determined in accordance with the ISO Guide to the Expression of Uncertainty in Measurement.

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